

Supplementary Material

Supplementary Table 1: Variables collected and source.

Variable collected	Source of variable														
Baseline Patient Characteristics															
Date of birth	Chart, administrative database														
Gender	Chart, administrative database														
Deprivation Index (socioeconomic status) Material deprivation Social deprivation	Administrative database Material includes education, employment and income Social includes marital status, living alone, or single-parent family														
Rural vs. urban	Administrative database Determined using the patients postal code and health region														
Center	Chart														
Hospital admission/discharge dates	Chart														
Intensive care admission/discharge dates	Chart														
Primary intensive care unit diagnosis	Chart Each patient could only be classified in one category														
Pediatric Risk of Mortality score (PRISM) score/PRISM Death Rate	Chart Collected values from the first 24-hours of intensive care admission and calculated using published equations														
Pediatric Medical Complexity Algorithm	Administrative database Algorithm includes International Classification of Disease-9 codes. Used all diagnostic codes from index admission to classify the patient.														
ICU treatment characteristics															
Nephrotoxic antibiotics	Chart Collected for every day of intensive care admission (up to 21 days)														
Vasopressors used	Chart Collected for every day of intensive care admission (up to 21 days)														
Steroids used	Chart Collected for every day of intensive care admission (up to 21 days)														
Mechanically ventilated (yes/no)	Chart Collected for every day of intensive care admission (up to 21 days)														
Renal Specific															
Serum creatinine	Chart Collected for every day of intensive care admission (up to 21 days)														
Urine output	Chart Collected for every day of intensive care admission (up to 21 days) in 8 hr intervals														
Dialysis (yes/no)	Chart Collected for every day of intensive care admission (up to 21 days)														
Post-discharge characteristics															
Family physician/pediatrician (yes/no)	Administrative database Patient registered with a family doctor, family medicine clinic, or general pediatrician in the 2-years post-hospital discharge														
Outcomes															
Hospitalizations	Administrative database														
Emergency room visits	Administrative database														
Physician visits	Administrative database														
	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Description</th> <th style="text-align: left; border-bottom: 1px solid black;">Code</th> </tr> </thead> <tbody> <tr> <td>Private office</td> <td>000, 6XX</td> </tr> <tr> <td>Outpatient clinic</td> <td>0X1</td> </tr> <tr> <td>Family Physician Unit</td> <td>4X1</td> </tr> <tr> <td>Certified Physical Medicine and Rehabilitation Physician</td> <td>340</td> </tr> <tr> <td>Family Medicine Group</td> <td>54X, 55X</td> </tr> <tr> <td>Local Community Service Center</td> <td>8X5, 9X2</td> </tr> </tbody> </table>	Description	Code	Private office	000, 6XX	Outpatient clinic	0X1	Family Physician Unit	4X1	Certified Physical Medicine and Rehabilitation Physician	340	Family Medicine Group	54X, 55X	Local Community Service Center	8X5, 9X2
Description	Code														
Private office	000, 6XX														
Outpatient clinic	0X1														
Family Physician Unit	4X1														
Certified Physical Medicine and Rehabilitation Physician	340														
Family Medicine Group	54X, 55X														
Local Community Service Center	8X5, 9X2														

Supplementary Table 2: Univariable Poisson regression of patient characteristics associated with 5-year hospitalizations, emergency room visits, and physician visits

	Hospitalizations (N events = 5315)	Emergency room (N events = 9606)	Physician visits (N events = 60083)
Baseline Patient Characteristics			
Age at intensive care unit admission			
≤ 1 year	1.88 [1.73 – 2.06]	1.42 [1.34 – 1.51]	1.50 [1.46 – 1.54]
>1-2 years	1.46 [1.31 – 1.62]	1.14 [1.06 – 1.22]	1.34 [1.30 – 1.38]
>2-13 years	1.56 [1.43 – 1.69]	0.89 [0.85 – 0.95]	1.19 [1.60 – 1.22]
>13 years	1.00	1.00	1.00
Female (vs. male)	0.99 [0.93 – 1.04]	0.89 [0.85 – 0.93]	1.03 [1.01 – 1.05]
Deprivation Index			
Material ^a			
First Quintile (least-deprived)	0.76 [0.69 – 0.82]	0.67 [0.63 – 0.72]	1.11 [1.08 – 1.14]
Second Quintile	0.84 [0.77 – 0.91]	0.83 [0.78 – 0.89]	1.02 [1.00 – 1.05]
Third Quintile	0.94 [0.87 – 1.03]	0.85 [0.80 – 0.91]	1.06 [1.03 – 1.08]
Fourth Quintile	0.98 [0.90 – 1.06]	0.92 [0.87 – 0.98]	0.99 [0.96 – 1.01]
Fifth Quintile (most-deprived)	1.00	1.00	1.00
Social ^b			
First Quintile (least-deprived)	0.85 [0.78 – 0.93]	0.71 [0.67 – 0.76]	0.92 [0.90 – 0.95]
Second Quintile	0.84 [0.77 – 0.92]	0.67 [0.63 – 0.72]	0.96 [0.94 – 0.99]
Third Quintile	0.91 [0.74 – 0.89]	0.85 [0.80 – 0.90]	0.88 [0.86 – 0.90]
Fourth Quintile	0.98 [0.91 – 1.07]	0.88 [0.83 – 0.93]	0.97 [0.94 – 0.99]
Fifth Quintile (most-deprived)	1.00	1.00	1.00
Rural (vs. urban)	1.06 [0.98 – 1.14]	0.94 [0.88 – 0.99]	0.79 [0.77 – 0.81]
Centre 1 (vs. centre 2)	0.96 [0.91 – 1.01]	1.12 [1.08 – 1.17]	0.99 [0.97 – 1.00]
Intensive care unit diagnosis			
Cardiac (non-surgical)	0.85 [0.75 – 0.95]	1.08 [1.00 – 1.17]	1.20 [1.17 – 1.24]
Trauma	0.29 [0.25 – 0.33]	0.47 [0.43 – 0.51]	0.46 [0.44 – 0.47]
Kidney	0.82 [0.61 – 1.11]	0.81 [0.65 – 1.02]	1.93 [1.82 – 2.05]
Infection (non-bronchiolitis)	1.07 [1.01 – 1.15]	1.07 [1.02 – 1.13]	0.99 [0.97 – 1.01]
Neurologic/neurosurgical	1.30 [1.22 – 1.40]	1.13 [1.07 – 1.19]	1.02 [1.00 – 1.04]
Gastrointestinal	1.53 [1.36 – 1.72]	1.25 [1.13 – 1.37]	1.30 [1.25 – 1.35]
Oncologic	3.88 [3.53 – 4.27]	0.96 [0.85 – 1.10]	2.59 [2.50 – 2.67]
Respiratory	1.26 [1.16 – 1.36]	1.33 [1.26 – 1.41]	1.09 [1.06 – 1.12]
Diabetes	0.83 [0.70 – 0.99]	1.96 [1.79 – 2.13]	1.35 [1.30 – 1.41]
Other	0.72 [0.67 – 0.77]	0.82 [0.78 – 0.86]	0.86 [0.84 – 0.87]
PRISM Death Rate Quartiles (%)			
0.18 – 0.83	0.66 [0.61 – 0.71]	0.65 [0.62 – 0.69]	0.76 [0.74 – 0.78]
0.83 – 1.86	0.86 [0.80 – 0.92]	0.77 [0.73 – 0.81]	0.85 [0.83 – 0.87]
1.86 – 4.22	0.81 [0.75 – 0.87]	0.84 [0.80 – 0.89]	0.89 [0.87 – 0.91]
4.22 – 87.30	1.00	1.00	1.00
Pediatric Medical Complexity Algorithm			
No chronic disease	1.00	1.00	1.00
Non-complex chronic disease	1.58 [1.38 – 1.81]	1.42 [1.32 – 1.52]	1.22 [1.15 – 1.28]
Complex chronic disease	4.98 [4.44 – 5.59]	1.90 [1.79 – 2.02]	2.05 [1.97 – 2.14]
Treatment characteristics			
Nephrotoxic antibiotics (yes/no) ^c	1.35 [1.27 – 1.44]	1.08 [1.03 – 1.13]	1.22 [1.19 – 1.24]
Vasopressors used (yes/no)	1.03 [0.94 – 1.14]	1.00 [0.93 – 1.08]	1.10 [1.06 – 1.12]
Steroids used (yes/no)	1.57 [1.48 – 1.66]	1.23 [1.18 – 1.29]	1.25 [1.23 – 1.27]
Mechanically ventilated (yes/no)	1.14 [1.08 – 1.21]	1.04 [1.00 – 1.08]	0.95 [0.93 – 0.97]
Post-discharge characteristics			
Primary care physician	0.69 [0.65 – 0.73]	1.12 [1.07 – 1.16]	N/A

^aMaterial includes education, employment and income, from the least-deprived group (Quintile 1) to the most-deprived group (Quintile 5)

^bSocial includes marital status (being widowed, separated, or divorced), living alone, or being in a single-parent family, from the least-deprived group (Quintile 1) to the most-deprived group (Quintile 5).

^cIncludes aminoglycosides, acyclovir/ganciclovir, amphotericin, vancomycin

Abbreviations: *PRISM* = Pediatric Risk of Mortality score

Supplementary Table 3: Univariable Poisson regression of patient characteristics associated with 30-day hospitalizations, emergency room visits, and physician visits

	Hospitalizations (N events = 354)	Emergency room (N events = 444)	Physician visits (N events = 2800)
Baseline Patient Characteristics			
Age at intensive care unit admission			
≤ 1 year	1.68 [1.22 – 2.31]	1.72 [1.29 – 2.30]	1.57 [1.40 – 1.76]
>1-2 years	1.75 [1.22 – 2.51]	1.52 [1.08 – 2.12]	1.32 [1.15 – 1.52]
>2-13 years	1.04 [0.76 – 1.42]	1.15 [0.87 – 1.51]	1.22 [1.09 – 1.36]
>13 years	1.00	1.00	1.00
Female (vs. male)	0.92 [0.75 – 1.14]	0.83 [0.68 – 1.00]	1.01 [0.93 – 1.08]
Deprivation Index			
Material^a			
First Quintile (least-deprived)	0.94 [0.67 – 1.31]	0.63 [0.46 – 0.85]	1.24 [1.10 – 1.39]
Second Quintile	0.83 [0.58 – 1.18]	0.88 [0.67 – 1.17]	1.10 [0.98 – 1.24]
Third Quintile	1.17 [0.85 – 1.62]	0.86 [0.65 – 1.15]	1.19 [1.06 – 1.35]
Fourth Quintile	1.15 [0.84 – 1.57]	0.86 [0.65 – 1.13]	1.02 [0.90 – 1.15]
Fifth Quintile (most-deprived)	1.00	1.00	1.00
Social^b			
First Quintile (least-deprived)	1.17 [0.84 – 1.62]	1.39 [1.04 – 1.85]	1.01 [0.90 – 1.14]
Second Quintile	0.95 [0.67 – 1.36]	1.03 [0.75 – 1.42]	0.88 [0.78 – 1.00]
Third Quintile	0.93 [0.65 – 1.33]	0.93 [0.67 – 1.29]	0.95 [0.84 – 1.07]
Fourth Quintile	1.12 [0.80 – 1.56]	1.10 [0.81 – 1.49]	0.99 [0.88 – 1.12]
Fifth Quintile (most-deprived)	1.00	1.00	1.00
Rural (vs. urban)	1.25 [0.96 – 1.63]	1.10 [0.86 – 1.41]	0.85 [0.76 – 0.94]
Centre 1 (vs. centre 2)	0.86 [0.69 – 1.07]	1.10 [0.91 – 1.33]	1.01 [0.94 – 1.09]
Intensive care unit diagnosis			
Cardiac (non-surgical)	1.05 [0.69 – 1.59]	1.12 [0.78 – 1.61]	1.34 [1.18 – 1.53]
Trauma	0.46 [0.29 – 0.73]	0.68 [0.48 – 0.96]	0.59 [0.51 – 0.68]
Kidney	0.60 [0.15 – 2.42]	0.24 [0.03 – 1.71]	2.33 [1.80 – 3.01]
Infection (non-bronchiolitis)	1.11 [0.86 – 1.43]	1.26 [1.01 – 1.57]	1.05 [0.96 – 1.15]
Neurologic/neurosurgical	1.15 [0.87 – 1.52]	1.13 [0.88 – 1.46]	0.84 [0.75 – 0.94]
Gastrointestinal	1.77 [1.16 – 2.70]	1.65 [1.12 – 2.43]	1.34 [1.13 – 1.59]
Oncologic	5.23 [3.85 – 7.12]	1.36 [0.84 – 2.21]	3.09 [2.70 – 3.53]
Respiratory	1.08 [0.78 – 1.49]	0.95 [0.70 – 1.29]	0.92 [0.82 – 1.04]
Diabetes	0.38 [0.14 – 1.03]	1.50 [0.95 – 2.38]	1.13 [0.91 – 1.39]
Other	0.55 [0.42 – 0.72]	0.70 [0.55 – 0.88]	0.81 [0.74 – 0.88]
PRISM Death Rate Quartiles (%)			
0.18 – 0.83	0.68 [0.51 – 0.92]	0.64 [0.49 – 0.84]	0.75 [0.67 – 0.83]
0.83 – 1.86	0.71 [0.53 – 0.96]	0.68 [0.52 – 0.88]	0.73 [0.66 – 0.81]
1.86 – 4.22	0.88 [0.67 – 1.16]	0.90 [0.71 – 1.15]	0.80 [0.73 – 0.89]
4.22 – 87.30	1.00	1.00	1.00
Pediatric Medical Complexity Algorithm			
No chronic disease	1.00	1.00	1.00
Non-complex chronic disease	1.72 [1.05 – 2.83]	1.34 [0.98 – 1.83]	1.17 [1.02 – 1.33]
Complex chronic disease	4.10 [2.68 – 6.27]	1.47 [1.12 – 1.93]	1.71 [1.53 – 1.91]
Treatment characteristics			
Nephrotoxic antibiotics (yes/no) ^c	1.86 [1.49 – 2.33]	1.35 [1.10 – 1.67]	1.46 [1.34 – 1.59]
Vasopressors used (yes/no)	1.28 [0.90 – 1.81]	1.52 [1.13 – 2.03]	1.34 [1.19 – 1.51]
Steroids used (yes/no)	1.52 [1.23 – 1.89]	1.06 [0.87 – 1.30]	1.28 [1.19 – 1.39]
Mechanically ventilated (yes/no)	1.12 [0.91 – 1.39]	1.13 [0.93 – 1.36]	0.93 [0.86 – 1.01]

^aMaterial includes education, employment and income, from the least-deprived group (Quintile 1) to the most-deprived group (Quintile 5)

^bSocial includes marital status (being widowed, separated, or divorced), living alone, or being in a single-parent family, from the least-deprived group (Quintile 1) to the most-deprived group (Quintile 5).

^cIncludes aminoglycosides, acyclovir/ganciclovir, amphotericin, vancomycin

Abbreviations: PRISM = Pediatric Risk of Mortality Score

Supplementary Table 4: Univariable Poisson regression of patient characteristics associated with 1-year hospitalizations, emergency room visits, and physician visits

	Hospitalizations (N events = 2290)	Emergency room (N events = 3292)	Physician visits (N events = 20763)
Baseline Patient Characteristics			
Age at intensive care unit admission			
≤ 1 year	2.27 [1.98 – 2.50]	1.75 [1.58 – 1.93]	1.85 [1.77 – 1.93]
>1-2 years	1.76 [1.50 – 2.07]	1.45 [1.29 – 1.64]	1.54 [1.46 – 1.62]
>2-13 years	1.62 [1.42 – 1.85]	0.93 [0.84 – 1.03]	1.29 [1.24 – 1.34]
>13 years	1.00	1.00	1.00
Female (vs. male)	0.93 [0.85 – 1.01]	0.80 [0.75 – 0.86]	0.96 [0.93 – 0.98]
Deprivation Index			
Material ^a			
First Quintile (least-deprived)	0.79 [0.69 – 0.90]	0.64 [0.57 – 0.72]	1.14 [1.09 – 1.19]
Second Quintile	0.86 [0.76 – 0.99]	0.92 [0.83 – 1.03]	1.00 [0.96 – 1.05]
Third Quintile	1.02 [0.89 – 1.15]	0.86 [0.77 – 0.95]	1.10 [1.05 – 1.15]
Fourth Quintile	1.06 [0.94 – 1.20]	0.89 [0.81 – 0.99]	1.03 [0.99 – 1.08]
Fifth Quintile (most-deprived)	1.00	1.00	1.00
Social ^b			
First Quintile (least-deprived)	0.97 [0.85 – 1.11]	0.80 [0.71 – 0.89]	0.94 [0.90 – 0.98]
Second Quintile	0.95 [0.83 – 1.09]	0.79 [0.70 – 0.88]	0.93 [0.89 – 0.97]
Third Quintile	0.88 [0.77 – 1.01]	0.91 [0.81 – 1.01]	0.87 [0.83 – 0.91]
Fourth Quintile	1.08 [0.95 – 1.23]	0.95 [0.86 – 1.06]	0.98 [0.94 – 1.03]
Fifth Quintile (most-deprived)	1.00	1.00	Ref
Rural (vs. urban)	1.06 [0.95 – 1.18]	0.88 [0.80 – 0.97]	0.80 [0.76 – 0.83]
Centre 1 (vs. centre 2)	0.85 [0.78 – 0.92]	1.13 [1.05 – 1.21]	0.97 [0.95 – 1.00]
Intensive care unit diagnosis			
Cardiac (non-surgical)	0.88 [0.73 – 1.04]	0.96 [0.83 – 1.11]	1.22 [1.16 – 1.29]
Trauma	0.27 [0.21 – 0.34]	0.44 [0.37 – 0.51]	0.48 [0.45 – 0.51]
Kidney	0.93 [0.60 – 1.44]	0.48 [0.29 – 0.80]	1.98 [1.79 – 2.19]
Infection (non-bronchiolitis)	1.00 [0.90 – 1.10]	1.23 [1.14 – 1.34]	0.98 [0.95 – 1.02]
Neurologic/neurosurgical	1.35 [1.21 – 1.50]	1.14 [1.04 – 1.25]	0.99 [0.95 – 1.03]
Gastrointestinal	1.39 [1.15 – 1.67]	1.19 [1.01 – 1.40]	1.31 [1.23 – 1.40]
Oncologic	5.87 [5.22 – 6.60]	1.07 [0.88 – 1.31]	3.49 [3.33 – 3.66]
Respiratory	1.18 [1.05 – 1.34]	1.30 [1.17 – 1.43]	1.10 [1.05 – 1.14]
Diabetes	0.73 [0.55 – 0.96]	2.19 [1.90 – 2.52]	1.11 [1.03 – 1.20]
Other	0.59 [0.53 – 0.65]	0.74 [0.69 – 0.81]	0.76 [0.74 – 0.79]
PRISM Death Rate Quartiles (%)			
0.18 – 0.83	0.70 [0.63 – 0.79]	0.58 [0.53 – 0.64]	0.75 [0.73 – 0.78]
0.83 – 1.86	0.85 [0.76 – 0.95]	0.71 [0.65 – 0.78]	0.78 [0.75 – 0.81]
1.86 – 4.22	0.81 [0.72 – 0.91]	0.80 [0.73 – 0.88]	0.85 [0.82 – 0.89]
4.22 – 87.30	1.00	1.00	1.00
Pediatric Medical Complexity Algorithm			
No chronic disease	1.00	1.00	1.00
Non-complex chronic disease	1.73 [1.40 – 2.15]	1.36 [1.20 – 1.54]	1.22 [1.15 – 1.28]
Complex chronic disease	5.31 [4.43 – 6.38]	1.81 [1.63 – 2.01]	2.05 [1.97 – 2.14]
Treatment characteristics			
Nephrotoxic antibiotics (yes/no) ^c	1.33 [1.21 – 1.46]	1.20 [1.10 – 1.29]	1.35 [1.31 – 1.39]
Vasopressors used (yes/no)	1.05 [0.90 – 1.21]	0.94 [0.83 – 1.07]	1.22 [1.17 – 1.28]
Steroids used (yes/no)	1.83 [1.68 – 1.99]	1.30 [1.21 – 1.40]	1.38 [1.34 – 1.42]
Mechanically ventilated (yes/no)	1.17 [1.08 – 1.27]	1.01 [0.94 – 1.08]	0.97 [0.94 – 1.00]

^aMaterial includes education, employment and income, from the least-deprived group (Quintile 1) to the most-deprived group (Quintile 5)

^bSocial includes marital status (being widowed, separated, or divorced), living alone, or being in a single-parent family, from the least-deprived group (Quintile 1) to the most-deprived group (Quintile 5).

^cIncludes aminoglycosides, acyclovir/ganciclovir, amphotericin, vancomycin

Abbreviations: PRISM = Pediatric Risk of Mortality Score

Supplementary Table 5: Comparison of 30-day and 1-year hospitalizations, emergency room visits, and physician visits between patients with vs. without acute kidney injury (AKI) presented at events per person-time [95% confidence interval (CI)]

	Hospitalizations			Emergency room visits		Outpatient physician visits	
30-days	# visits	# intensive care admissions	Events/person month [95% CI]	# visits	Events/person month [95% CI]	# visits	Events/person month [95% CI]
<i>AKI by serum creatinine only</i>							
No AKI	222	41	0.17 [0.16 – 0.19]	273	0.21 [0.19 – 0.24]	1652	1.30 [1.23 – 1.36]
AKI	77	13	0.26 [0.20 – 0.32] ^a	80	0.27 [0.21 – 0.33] ^a	606	2.03 [1.87 – 2.19] ^a
<i>AKI by serum creatinine or urine output</i>							
No AKI	227	41	0.18 [0.16 – 0.20]	279	0.22 [0.19 – 0.25]	1643	1.30 [1.24 – 1.36]
AKI	81	15	0.23 [0.18 – 0.28] ^a	89	0.25 [0.20 – 0.30] ^a	682	1.92 [1.78 – 2.07] ^a
1-year	# visits	# intensive care admissions	Events/person year [95% CI]	# visits	Events/person year [95% CI]	# visits	Events/person year [95% CI]
<i>AKI by serum creatinine only</i>							
No AKI	1367	194	1.08 [1.03 – 1.14]	1904	1.51 [1.44 – 1.58]	12239	9.70 [9.53 – 9.87]
AKI	476	73	1.62 [1.47 – 1.76] ^a	508	1.73 [1.58 – 1.88] ^a	4246	14.43 [14.0 – 14.89] ^a
<i>AKI by serum creatinine or urine output</i>							
No AKI	1363	193	1.09 [1.03 – 1.15]	1956	1.56 [1.49 – 1.63]	12277	9.80 [9.63 – 9.98]
AKI	532	85	1.52 [1.39 – 1.65] ^a	566	1.62 [1.49 – 1.75] ^a	4695	13.44 [13.06 – 13.83] ^a

^aP<0.001 for comparison between AKI and non-AKI by univariable Poisson regression

Supplementary Table 6: Relative risk [95% confidence interval] for 30-day, 1-year, and 5-year hospitalizations, emergency room visits, and physician visits by AKI stage 2/3 vs. no AKI/stage 1.

AKI serum creatinine only Stage 2/3 (vs. no AKI/ stage1)			
	Unadjusted (N=1575)	Model 1 (N=1575)	Model 2 (N=1497) ^d
Hospitalizations			
30-day	1.53 [1.08 – 2.17]	1.47 [1.01 – 2.15]	N/A
1-year	1.46 [1.27 – 1.68]	1.38 [1.18 – 1.62]	1.14 [0.95 – 1.35]
5-years	1.43 [1.30 – 1.57]	1.39 [1.25 – 1.55]	1.08 [0.96 – 1.22]
Emergency room visits			
30-day	1.19 [0.84 – 1.70]	0.98 [0.66 – 1.44]	N/A
1-year	1.08 [0.94 – 1.25]	0.91 [0.78 – 1.07]	0.85 [0.72 – 1.01]
5-years	1.15 [1.06 – 1.24]	0.98 [0.90 – 1.07]	0.92 [0.84 – 1.02]
Physician visits			
30-day	1.77 [1.57 – 1.99]	1.43 [1.25 – 1.64]	1.30 [1.12 – 1.51]
1-year	1.59 [1.52 – 1.66]	1.34 [1.27 – 1.41]	1.20 [1.13 – 1.27]
5-years	1.61 [1.57 – 1.66]	1.39 [1.35 – 1.44]	1.24 [1.20 – 1.28]
AKI serum creatinine or urine output Stage 2/3 (vs. no AKI/ stage1)			
	Unadjusted (N=1622)	Model 1 (N=1622)	Model 2 (N=1539) ^a
Hospitalizations			
30-day	1.46 [1.04 – 2.06]	1.44 [1.00 – 2.08]	N/A
1-year	1.39 [1.21 – 1.60]	1.39 [1.19 – 1.61]	1.15 [0.98 – 1.36]
5-years	1.35 [1.23 – 1.49]	1.37 [1.24 – 1.52]	1.08 [0.97 – 1.21]
Emergency room visits			
30-day	1.20 [0.86 – 1.68]	1.05 [0.73 – 1.51]	N/A
1-year	1.05 [0.91 – 1.20]	1.05 [0.91 – 1.22]	0.90 [0.77 – 1.05]
5-years	1.14 [1.06 – 1.24]	1.04 [0.96 – 1.14]	0.98 [0.90 – 1.08]
Physician visits			
30-day	1.66 [1.47 – 1.86]	1.37 [1.20 – 1.57]	1.26 [1.09 – 1.46]
1-year	1.47 [1.40 – 1.54]	1.28 [1.22 – 1.35]	1.15 [1.09 – 1.22]
5-years	1.49 [1.15 – 1.53]	1.32 [1.28 – 1.36]	1.22 [1.17 – 1.26]

Multivariable Poisson regression was used in all multivariable analyses to calculate adjusted relative risks.

Model 1 = adjusted for age (continuous), gender, center, significant diagnoses from univariable analysis (oncologic, diabetes, trauma, infection, cardiac (non-surgical), kidney, neurology/gastrointestinal/respiratory), death rate 4th quartile vs. others, nephrotoxic antibiotics, vasopressors, and steroids

Model 2 = adjusted for all variables in model 1 plus deprivation index (4th/5th quintile vs. others), Pediatric Medical Complexity Algorithm score, rural vs. urban, baseline number of hospitalizations, and family doctor/pediatrician (5-year hospitalizations and emergency room visits only)

^aFor model 2 the total N decreases because the deprivation index could not be calculated on all patients. N values for model 2: A) AKI serum creatinine alone (N=1497), B) AKI serum creatinine and urine output (N=1539)

Abbreviations: AKI = acute kidney injury

Supplementary Table 7: Sensitivity analysis excluding patients that died during the 5-year follow-up period. Multivariable Poisson regression of AKI with 5-year hospitalizations, emergency room visits, physician visits.

	Hospitalizations	Emergency room visits	Physician visits
AKI by serum creatinine only	1.71 [1.42 – 2.07]	1.01 [0.77 – 1.33]	1.34 [1.21 – 1.49]
AKI by serum creatinine and urine output	1.55 [1.35 – 1.78]	1.05 [0.92 – 1.19]	1.16 [1.10 – 1.22]

Multivariable Poisson regression was used in all multivariable analyses to calculate adjusted relative risks [95% confidence intervals].

Model 1 = adjusted for age (continuous), gender, center, significant diagnoses from univariable analysis (oncologic, diabetes, trauma, infection, cardiac (non-surgical), kidney, neurology/gastrointestinal/respiratory), death rate 4th quartile vs. others, nephrotoxic antibiotics, vasopressors, and steroids

Model 2 = adjusted for all variables in model 1 plus deprivation index (4th/5th quintile vs. others), Pediatric Medical Complexity Algorithm score, rural vs. urban, baseline number of hospitalizations, and family doctor/pediatrician (5-year hospitalizations and emergency room visits only).

Abbreviations: AKI= acute kidney injury

Supplementary Table 8: Subgroup analysis of interaction terms associated with 5-year hospitalizations.

	Unadjusted relative risk [95% confidence interval]
PEDIATRIC RISK OF MORTALITY (PRISM) DEATH RATE	
PRISM death rate quartiles 1-3	
No AKI serum creatinine (N= 961)	1.00
AKI serum creatinine (N= 174)	1.52 [1.39 – 1.67]
No AKI serum creatinine or urine output (N= 948)	1.00
AKI serum creatinine or urine output (N= 219)	1.40 [1.29 – 1.53]
PRISM death rate 4 th quartile (worst)	
No AKI serum creatinine (N= 315)	1.00
AKI serum creatinine (N= 125)	1.15 [1.03 – 1.29]
No AKI serum creatinine or urine output (N=319)	1.00
AKI serum creatinine or urine output (N=136)	1.21 [1.08 – 1.34]
DEPRIVATION INDEX	
Material Deprivation index quintile 1-3	
No AKI serum creatinine (N=677)	1.00
AKI serum creatinine (N=149)	1.71 [1.55 – 1.88]
No AKI serum creatinine or urine output (N=668)	1.00
AKI serum creatinine or urine output (N=181)	1.57 [1.43 – 1.73]
Material Deprivation index quintile 4/5	
No AKI serum creatinine (N= 541)	1.00
AKI serum creatinine (N= 130)	1.21 [1.08 – 1.34]
No AKI serum creatinine or urine output (N= 539)	1.00
AKI serum creatinine or urine output (N=151)	1.18 [1.07 – 1.31]
Social Deprivation index quintile 1-3	
No AKI serum creatinine (N= 745)	1.00
AKI serum creatinine (N=164)	1.55 [1.41 – 1.70]
No AKI serum creatinine or urine output (N= 734)	1.00
AKI serum creatinine or urine output (N= 199)	1.47 [1.34 – 1.61]
Social Deprivation index quintile 4/5	
No AKI serum creatinine (N=473)	1.00
AKI serum creatinine (N=115)	1.33 [1.20 – 1.49]
No AKI serum creatinine or urine output (N= 473)	1.00
AKI serum creatinine or urine output (N= 133)	1.26 [1.13 – 1.40]
PRIMARY CARE PHYSICIAN (YES/NO)	
No Primary care physician	
No AKI serum creatinine (N= 556)	1.00
AKI serum creatinine (N= 153)	1.25 [1.14 – 1.38]
No AKI serum creatinine or urine output (N= 541)	1.00
AKI serum creatinine or urine output (N= 184)	1.22 [1.12 – 1.34]
Primary Care Physician	
No AKI serum creatinine (N=720)	1.00
AKI serum creatinine (N=146)	1.55 [1.40 – 1.72]
No AKI serum creatinine or urine output (N= 726)	1.00
AKI serum creatinine or urine output (N= 171)	1.46 [1.33 – 1.62]
HOSPITALIZATIONS 12-MONTHS PRIOR TO INDEX	
No hospitalizations prior	
No AKI serum creatinine (N=680)	1.00
AKI serum creatinine (N=156)	1.74 [1.56 – 1.95]
No AKI serum creatinine or urine output (N=665)	1.00
AKI serum creatinine or urine output (N=192)	1.71 [1.54 – 1.91]
≥ 1 hospitalization prior	

No AKI serum creatinine (N= 596)	1.00
AKI serum creatinine (N= 143)	1.24 [1.13 – 1.35]
No AKI serum creatinine or urine output (N= 602)	1.00
AKI serum creatinine or urine output (N= 163)	1.22 [1.12 – 1.33]

Supplementary Table 9: Subgroup analysis of interaction terms associated with 5-year emergency room visits.

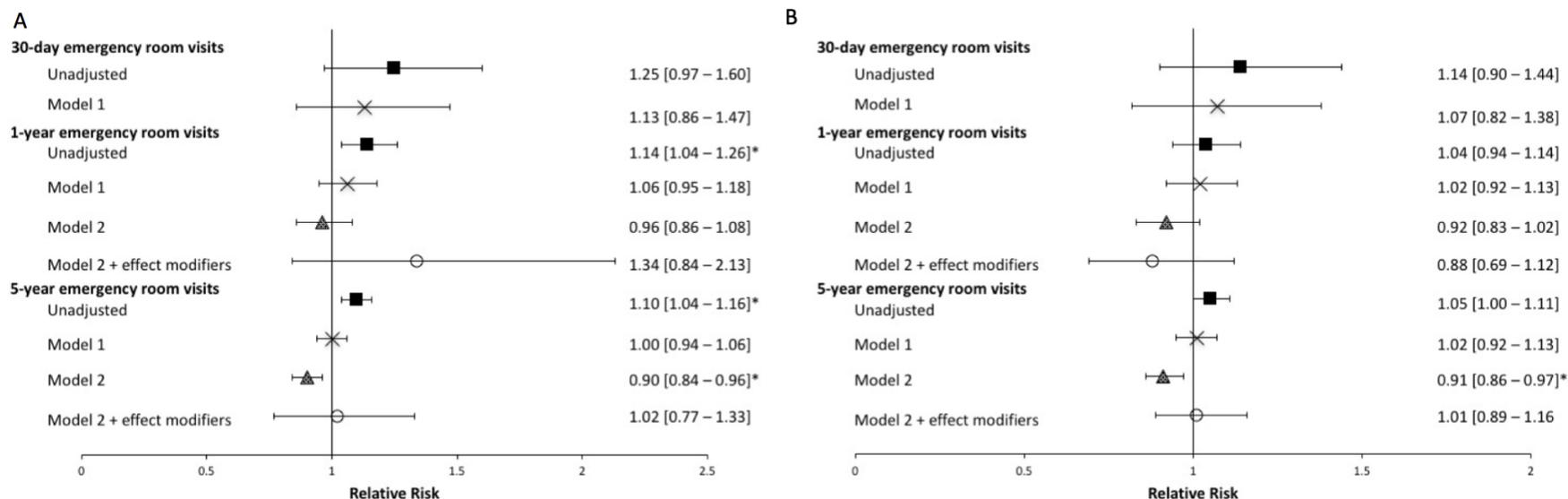
	Unadjusted relative risk [95% confidence interval]
NEPHROTOXIC ANTIBIOTICS IN PICU (YES/NO)	
No nephrotoxic antibiotics	
No AKI serum creatinine (N=987)	1.00
AKI serum creatinine (N=188)	0.98 [0.91 – 1.06]
No AKI serum creatinine or urine output (N=989)	1.00
AKI serum creatinine or urine output (N=229)	0.97 [0.90 – 1.04]
Nephrotoxic antibiotics	
No AKI serum creatinine (N=289)	1.00
AKI serum creatinine (N=111)	1.27 [1.16 – 1.40]
No AKI serum creatinine or urine output (N=278)	1.00
AKI serum creatinine or urine output (N=126)	1.17 [1.07 – 1.29]
SOCIAL DEPRIVATION INDEX	
Social Deprivation index quintile 1-3	
No AKI serum creatinine (N=745)	1.00
AKI serum creatinine (N=164)	1.27 [1.18 – 1.38]
No AKI serum creatinine or urine output (N=734)	1.00
AKI serum creatinine or urine output (N=199)	1.22 [1.12 – 1.31]
Social Deprivation index quintile 4/5	
No AKI serum creatinine (N= 473)	1.00
AKI serum creatinine (N=115)	0.92 [0.84 – 1.01]
No AKI serum creatinine or urine output (N=473)	1.00
AKI serum creatinine or urine output (N=133)	0.87 [0.80 – 0.95]
PEDIATRIC MEDICAL COMPLEXITY ALGORITHM	
No chronic disease	
No AKI serum creatinine (N=269)	1.00
AKI serum creatinine (N=34)	0.81 [0.65 – 1.02]
No AKI serum creatinine or urine output (N=261)	1.00
AKI serum creatinine or urine output (N=50)	0.84 [0.70 – 1.02]
Non-complex chronic	
No AKI serum creatinine (N=276)	1.00
AKI serum creatinine (N=53)	1.13 [0.98 – 1.30]
No AKI serum creatinine or urine output (N=282)	1.00
AKI serum creatinine or urine output (N=60)	1.10 [0.96 – 1.26]
Complex chronic	
No AKI serum creatinine (N=731)	1.00
AKI serum creatinine (N=212)	1.03 [0.96 – 1.10]
No AKI serum creatinine or urine output (N=724)	1.00
AKI serum creatinine or urine output (N=245)	0.99 [0.93 – 1.06]
HOSPITALIZATIONS 12-MONTHS PRIOR TO INDEX	
No hospitalizations prior	
No AKI serum creatinine (N=680)	1.00
AKI serum creatinine (N=156)	1.42 [1.30 – 1.55]
No AKI serum creatinine or urine output (N=665)	1.00
AKI serum creatinine or urine output (N=192)	1.36 [1.26 – 1.48]
≥1 hospitalization prior	
No AKI serum creatinine (N=596)	1.00
AKI serum creatinine (N=143)	0.91 [0.84 – 0.98]
No AKI serum creatinine or urine output (N=602)	1.00
AKI serum creatinine or urine output (N=163)	0.89 [0.83 – 0.96]

Supplementary Table 10: Subgroup analysis of interaction terms associated with 5-year physician visits.

	Unadjusted relative risk [95% confidence interval]
GENDER	
Female	
No AKI serum creatinine (N= 583)	1.00
AKI serum creatinine (N=143)	1.62 [1.57 – 1.67]
No AKI serum creatinine or urine output (N=574)	1.00
AKI serum creatinine or urine output (N=168)	1.52 [1.48 – 1.56]
Male	
No AKI serum creatinine (N= 693)	1.00
AKI serum creatinine (N=156)	1.32 [1.28 – 1.36]
No AKI serum creatinine or urine output (N=693)	1.00
AKI serum creatinine or urine output (N=187)	1.21 [1.18 – 1.25]
CENTER	
Montreal Children’s Hospital	
No AKI serum creatinine (N=454)	1.00
AKI serum creatinine (N=87)	1.37 [1.31 – 1.42]
No AKI serum creatinine or urine output (N=464)	1.00
AKI serum creatinine or urine output (N=100)	1.28 [1.23 – 1.32]
Hospital Sainte-Justine	
No AKI serum creatinine (N= 822)	1.00
AKI serum creatinine (N=212)	1.51 [1.47 – 1.55]
No AKI serum creatinine or urine output (N= 803)	1.00
AKI serum creatinine or urine output (N=255)	1.40 [1.37 – 1.43]
PRIMARY INTENSIVE CARE ADMISSION DIAGNOSIS	
Infection	
No AKI serum creatinine (N= 253)	1.00
AKI serum creatinine (N= 67)	1.30 [1.24 – 1.36]
No AKI serum creatinine or urine output (N=244)	1.00
AKI serum creatinine or urine output (N=86)	1.21 [1.16 – 1.26]
Cardiac non-surgical	
No AKI serum creatinine (N= 69)	1.00
AKI serum creatinine (N= 26)	1.14 [1.07 – 1.24]
No AKI serum creatinine or urine output (N= 71)	1.00
AKI serum creatinine or urine output (N= 28)	1.21 [1.12 – 1.30]
Kidney	
No AKI serum creatinine (N=4)	1.00
AKI serum creatinine (N=15)	2.17 [1.80 – 2.62]
No AKI serum creatinine or urine output (N=4)	1.00
AKI serum creatinine or urine output (N=13)	2.17 [1.80 – 2.62]
Neurological, gastrointestinal, respiratory	
No AKI serum creatinine (N= 382)	1.00
AKI serum creatinine (N=89)	1.34 [1.29 – 1.39]
No AKI serum creatinine or urine output (N= 386)	1.00
AKI serum creatinine or urine output (N=102)	1.31 [1.26 – 1.36]
All other intensive care unit diagnoses	
No AKI serum creatinine (N= 568)	1.00
AKI serum creatinine (N=102)	1.57 [1.51 – 1.62]
No AKI serum creatinine or urine output (N= 562)	1.00
AKI serum creatinine or urine output (N=124)	1.37 [1.33 – 1.42]
PEDIATRIC RISK OF MORTALITY (PRISM) DEATH RATE	
Death rate 1-3 quartile	
No AKI serum creatinine (N= 961)	1.00
AKI serum creatinine (N=174)	1.51 [1.47 – 1.55]
No AKI serum creatinine or urine output (N=948)	1.00
AKI serum creatinine or urine output (N=219)	1.31 [1.28 – 1.34]

Death rate 4th quartile	
No AKI serum creatinine (N=315)	1.00
AKI serum creatinine (N=125)	1.29 [1.25 – 1.33]
No AKI serum creatinine or urine output (N=319)	1.00
AKI serum creatinine or urine output (N=136)	1.31 [1.26 – 1.35]
MATERIAL DEPRIVATION INDEX	
Material Deprivation index quintile 1-3	
No AKI serum creatinine (N=677)	1.00
AKI serum creatinine (N=149)	1.74 [1.69 – 1.79]
No AKI serum creatinine or urine output (N=668)	1.00
AKI serum creatinine or urine output (N=181)	1.54 [1.50 – 1.58]
Material Deprivation index quintile 4/5	
No AKI serum creatinine (N= 541)	1.00
AKI serum creatinine (N=130)	1.20 [1.16 – 1.25]
No AKI serum creatinine or urine output (N=539)	1.00
AKI serum creatinine or urine output (N=151)	1.17 [1.14 – 1.21]
HOSPITALIZATIONS 12-MONTHS PRIOR TO INDEX	
No hospitalizations prior	
No AKI serum creatinine (N=680)	1.00
AKI serum creatinine (N=156)	1.49 [1.45 – 1.54]
No AKI serum creatinine or urine output (N=665)	1.00
AKI serum creatinine or urine output (N=192)	1.38 [1.34 – 1.42]
≥1 hospitalization prior	
No AKI serum creatinine (N= 596)	1.00
AKI serum creatinine (N= 143)	1.42 [1.38 – 1.46]
No AKI serum creatinine or urine output (N= 602)	1.00
AKI serum creatinine or urine output (N= 163)	1.35 [1.32 – 1.39]

Supplementary Figure 1: Relative risk [95% confidence interval] for 30-day, 1-year, and 5-year emergency room visits for patients with A) AKI defined using serum creatinine alone (N=1575)^a and B) AKI defined using serum creatinine and urine output (N=1622)^a



p<0.05; p<0.001

Shows the unadjusted (squares), model 1 adjustments (crosses), model 2 adjustments (triangles), and model 2 adjustments with effect modifiers (circles) relative risks for A) AKI by serum creatinine criteria and B) AKI by serum creatinine and urine output criteria, for 30-day, 1-year and 5-year hospitalizations for patients. Multivariable Poisson regression was used in all multivariable analyses to calculate adjusted relative risks. Model 2 adjustments were not made for the 30-day outcomes due to low numbers of emergency room visits.

Model 1 and model 2 are the same as described in Figure 1.

Effect modifiers added to model 2 include: AKI x infection, AKI x cardiac (non-surgical), AKI x kidney, AKI x neurology/gastrointestinal /respiratory, AKI x nephrotoxic antibiotics, AKI x material deprivation index, AKI x social deprivation index, AKI x Pediatric Medical Complexity Algorithm, AKI x rural, and AKI x number of hospitalizations 12 months prior

^aFor model 2 the total N decreases because the deprivation index could not be calculated on all patients. N values for model 2: A) AKI serum creatinine alone (N=1497), B) AKI serum creatinine and urine output (N=1539)